

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* KURT HAKAN CARLSSON, ULF ERIK NORDH,  
WILHELM ELKHART BRAUNISCH, and CAROLYN L. SLONE

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Appeal 2007-2475  
Application 10/708,533  
Technology Center 3700

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Decided: November 29, 2007

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Before JENNIFER D. BAHR, LINDA E. HORNER, and JOSEPH A. FISCHETTI,  
*Administrative Patent Judges.*

HORNER, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Kurt Hakan Carlsson et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 21-70, all of the pending claims in the application. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM.

### THE INVENTION

The Appellants' claimed invention is to a distributed microwave system having a single microwave generator that supplies microwaves to one or more microwave-using devices located remotely from the microwave generator. In one implementation, the microwave system is used as a cup warmer in a vehicle (Specification 1:¶ 0002). Claim 21, reproduced below, is representative of the subject matter on appeal.

21. A vehicle in combination with a distributed microwave cooking system, comprising:
- a microwave cooking element located within the vehicle and accessible by a user of the vehicle;
  - a microwave generator located within the vehicle and remotely spaced from the microwave cooking element; and
  - a microwave conduit connecting the microwave generator to the microwave cooking element such that the microwaves generated by the microwave generator are directed to the microwave cooking element through the microwave conduit to cook an item with the microwave cooking element.

### THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

Berggren

US 4,323,745

Apr. 6, 1982

Appeal 2007-2475  
Application 10/708,533

Takizaki	US 4,814,570	Mar. 21, 1989
Jensen	US 5,315,084	May 24, 1994
Perlman	US 6,060,700	May 9, 2000
Stutman	US 6,759,636 B2	Jul. 6, 2004
Nakagawa	JP 64-30194	Feb. 1, 1989

The following rejections are before us for review:

1. Claims 21, 29-37, 50-52, and 70 are rejected under 35 U.S.C. § 103 as unpatentable over Nakagawa and Perlman or Stutman.
2. Claims 22-28, 38-43, and 53-63 are rejected under 35 U.S.C. § 103 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Berggren.
3. Claims 44-49 and 64-69 are rejected under 35 U.S.C. § 103 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Jensen or Takizaki.

## ISSUES

The Appellants contend that the Examiner has failed to identify any motivation, suggestion, or teaching of the desirability of combining Nakagawa with either Perlman or Stutman to arrive at Appellants' invention (Br. 7) and that even when the prior art references are combined, the combination does not suggest a microwave cooking element located within a vehicle and energized by a microwave generator "remotely spaced" from the microwave cooking element and interconnected by a microwave conduit (Br. 10-11). The Appellants further contend that Berggren is non-analogous art (Br. 15-17), Berggren does not address the shortcomings of Nakagawa, Perlman, and Stutman (Br. 17), and there is no

motivation, suggestion, or teaching in Berggren for combining it with the prior art in the manner asserted by the Examiner (Br. 17). The Appellants further contend that neither Jensen nor Takizaki addresses the shortcomings of the underlying combination of prior art and there is no motivation, suggestion, or teaching in Jensen or Takizaki for combining them with the prior art in the manner asserted by the Examiner (Br. 21).

The Examiner found Nakagawa shows every feature of independent claims 21 and 51, except that it does not specify the use of the heating elements in a vehicle or as a cup warmer (Answer 4). The Examiner determined that it would have been obvious to modify Nakagawa to use its device in a vehicle or as a cup warmer to increase its utilities, in view of the teaching of Perlman or Stutman (*Id.*). The Examiner further found that Berggren is analogous art because it is pertinent to the problem with which the Appellants are concerned, *viz*, how microwave energy is transmitted from a single generator to a plurality of microwave ports (Answer 8-9). The Examiner also determined that Berggren shows that the use of waveguides or coaxial cables for connecting the microwave generator and the heating elements was well known and that the use of such well known elements in a known way would have been obvious (Answer 9). The Examiner further found that the use of sensors, such as temperature or weight sensors, was routine in the art of microwave ovens and thus to use any of these well known sensors in a microwave oven for better controlling a food operation would have been obvious in view of Jensen and Takizaki (Answer 9-10).

The issues before us are whether the Appellants have shown that the Examiner erred in rejecting claims 21, 29-37, 50-52, and 70 as unpatentable over Nakagawa and Perlman or Stutman, claims 22-28, 38-43, and 53-63 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Berggren, and claims 44-49 and 64-69 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Jensen or Takizaki.

### FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Nakagawa recognizes a demand in the marketplace for two or more microwave ovens per household and discloses a prior art method that selectively supplies microwaves from a single microwave generator to one of two heating chambers (Nakagawa 2-3 (“Prior Art”)).<sup>1</sup>
2. Nakagawa discloses a microwave heating device with a microwave oscillator 1 attached to one end of a coaxial waveguide 2, and an isolator 3 attached to the other end of the coaxial waveguide 2 (Nakagawa 4).
3. The other end of Nakagawa’s isolator 3 is attached to a branched waveguide 4, which selectively supplies microwaves to one or the other of microwave heating chambers 9, 10 (Nakagawa 4). Nakagawa shows

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<sup>1</sup> All references to Nakagawa in this Opinion refer to the translation provided in Appendix A to Appellants’ Brief (Br. 4 n.1).

- these heating chambers 9, 10 located within separate housings (Nakagawa, Fig. 1), and shows that Nakagawa's microwave oscillator 1 is not within either of the oven housings, but is instead connected to the microwave heating chambers 9, 10 via waveguides 2, 4.
4. Nakagawa does not disclose using its microwave heating device in a vehicle or as a cup warmer.
  5. Perlman discloses a microwave oven adapted for use within a motor vehicle dashboard area, or alternatively, within the console area between the two front seats (Perlman, col. 3, ll. 23-28).
  6. Perlman discloses that the cavity size of its microwave oven will accommodate several beverage cups (Perlman, col. 7, ll. 20-21).
  7. Stutman discloses a microwave oven for use in vehicles, such as cars, trucks, aircraft, and boats (Stutman, col. 1, ll. 11-13).
  8. Stutman discloses that its microwave oven can be used to heat baby bottles or morning coffee (Stutman, col. 2, ll. 3-7).
  9. Berggren discloses a microwave generator 40 connected via a waveguide or coaxial conductor 41 to a coaxial or waveguide switch 42, which via a first waveguide or coaxial conductor 43 and a second waveguide or coaxial conductor 44, is connected to a heating cavity 45 (Berggren, Fig. 4 and col. 3, ll. 3-11).
  10. Jensen discloses that it was well known in the microwave heating art to use a weight sensor in the heating unit to indicate the amount of a beverage disposed in a bottle to be warmed to control the warming time

and to prevent the microwave from being turned on if no bottle is present within the heating unit (Jensen, col. 3, ll. 40-56).

11. Takizaki discloses that it was well known in the microwave heating art to use a weight sensor, a gas sensor, and a temperature sensor to control a heating unit (Takizaki, col. 6, ll. 44-50 and col. 6, l. 66 – col. 7, l. 4).

### PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

### ANALYSIS

*Rejection of claims 21, 29-37, 50-52, and 70 as unpatentable over Nakagawa and Perlman or Stutman*

The Appellants contend that the Examiner has failed to identify any motivation, suggestion, or teaching of the desirability of combining Nakagawa with either Perlman or Stutman to arrive at Appellants' invention (Br. 7).

We agree with the Examiner (Answer 4) that Nakagawa shows every feature of independent claims 21 and 51, except that it does not specify the use of the heating elements in a vehicle or as a cup warmer (Finding of Facts 2-4). We further find that Nakagawa recognizes a demand in the marketplace for two or more microwave ovens per household and discloses a prior art method that selectively supplies microwaves from a single microwave generator to one of two heating chambers (Finding of Fact 1). The Appellants further recognize a similar demand in the marketplace for multiple, heated cup warmers in a vehicle and prior art solutions to the problem of keeping contents of a cup warm (Specification 1:¶ 0005).

The Examiner determined that it would have been obvious to modify Nakagawa to use its device in a vehicle or as a cup warmer to increase its utilities, in view of the teaching of Perlman or Stutman (*Id.*). We understand the Examiner's rationale to mean that it would have been obvious to one having ordinary skill in the art, upon learning of the teachings of Perlman and Stutman of using a single microwave heating unit in a vehicle (Finding of Facts 5-8), to use the solution of Nakagawa to meet the market demand for multiple, microwave heating elements in a vehicle. As such, contrary to the Appellants' assertion, the Examiner has provided a reason with some rational underpinning to support the legal conclusion that one having ordinary skill in the art would have found it



obvious to use the device of Nakagawa in a vehicle. *KSR*, 127 S.Ct. at 1740-41 (“Often, it will be necessary for a court to look to ... the effects of demands known to the design community or present in the marketplace, ... in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.”)

Further, we find that the proposed modification to Nakagawa, i.e., to use its device in a vehicle, is a predictable variation of the teaching of Nakagawa in view of market forces for multiple, heated cup warmers in vehicles, and the Appellants have not demonstrated that such a modification was beyond the skill of one having ordinary skill in the art. *KSR*, 127 S.Ct. at 1740 (“When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”) As such, the Appellants have not persuaded us of error in the Examiner’s reasoning to support the legal conclusion of obviousness.

The Appellants further contend that even when the prior art references are combined, the combination does not suggest a microwave cooking element located within a vehicle and energized by a microwave generator “remotely spaced” from the microwave cooking element and interconnected by a microwave conduit (Br. 10-11). Specifically, the Appellants contend that “Applicants’ description of the

invention makes clear that ‘remotely spaced’ means that the oscillator is spaced at some significant distance from the cooking element. Examples include locating the oscillator in a vehicle trunk or engine compartment” (Br. 10). We decline to construe the phrase “remotely spaced” as narrowly as proffered by the Appellants.

We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). We must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (“Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.”) The challenge is to interpret claims in view of the specification without unnecessarily importing limitations from the specification into the claims. *See E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003).

In this case, claim 21 recites, “a microwave generator located within the vehicle and remotely spaced from the microwave cooking element.” The claim does not explicitly require that the generator is spaced at some significant distance from the cooking element, and the Specification does not provide any indication of

the extent of the spacing, or a measure of the distance, between the generator and the cooking element. Rather, the Specification merely makes clear that the generator is not located within the oven housing, as in a conventional microwave, such that a conduit is necessary to direct the microwaves from the generator to one or more of the cooking elements (Specification 2:¶ 0008).

The embodiments pointed to by the Appellants, in which the generator is located in the trunk or engine compartment, are merely preferred embodiments from the Specification (Specification 3:¶ 0011) and do not provide a definition of “remotely spaced” or require us to limit “remotely spaced” to these embodiments. We further note that the Specification states that the generator can be located beneath the front seats or rear seat (Specification 7:¶ 0036). If the cooking element is located between the front seats in the center console and the generator is located beneath one of the front seats, we question whether, under the Appellants’ proffered definition, the generator would be located at a significant enough distance from the cooking element to be “remotely spaced.” We decline to adopt a narrow definition of “remotely spaced” that might unnecessarily exclude some of the disclosed embodiments of the invention from the Specification.

In view of our understanding of “remotely spaced,” as that phrase would be understood by one having ordinary skill in the art in light of the Specification, we find that Nakagawa’s device has a microwave oscillator 1 that is not within a conventional microwave oven housing, but is instead connected to the microwave heating chambers 9, 10 via waveguides 2, 4, and is thus remotely spaced from the microwave heating chambers (Finding of Fact 2 and 3). The Appellants argue that

Nakagawa's schematic drawings "must be read as describing no more than a conventional microwave oven with a single cooking chamber divided into multiple cooking chambers and supplied by a single oscillator through a multi-branched waveguide" (Br. 10-11) We disagree. Although Nakagawa's figures are schematics, when these figures are viewed in light of the description in Nakagawa of having "two or more microwave ovens per household," one skilled in the art would understand the schematic figures to be showing that the cooking chambers can be placed in different areas of the household, and the oscillator is remote from each of the cooking chambers. Thus, the Appellants have not persuaded us of error in the Examiner's findings as the scope and content of the prior art or the legal conclusion of obviousness. Accordingly, we sustain the rejection of claim 21 as unpatentable over Nakagawa and Perlman or Stutman.

The Appellants have not presented any separate arguments as to the patentability of claims 29, 30, 35, 36, and 51 (Br. 11). As such, these claims, which are subject to the same ground of rejection, fall with claim 21. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

With regard to the remaining dependent claims 31-34, 37, 50, 52, and 70, the Appellants' arguments consist of nothing more than a recitation of what each claim states and a bald assertion, unsupported by specific arguments, that the claimed limitations are not disclosed in any proper combination of the prior art (Br. 12-14). The Appellants' arguments as to claims 31-34, 37, 50, 52, and 70 do not persuade us of error in the Examiner's rejection. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007) ("A statement which merely points out what a claim recites will not be considered

Appeal 2007-2475  
Application 10/708,533

an argument for separate patentability of the claim.”) As such, we sustain the rejection of claims 31-34, 37, 50, 52, and 70 for the same reasons set forth *supra* for claim 21.

*Rejection of claims 22-28, 38-43, and 53-63 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Berggren*

The Appellants contend that Berggren is non-analogous art (Br. 15-17).

The analogous-art test requires that the Board show that a reference is either in the field of the applicant's endeavor or is reasonably pertinent to the problem with which the inventor was concerned in order to rely on that reference as a basis for rejection. *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992). References are selected as being reasonably pertinent to the problem based on the judgment of a person having ordinary skill in the art. *Id.* (“[I]t is necessary to consider ‘the reality of the circumstances,’ -in other words, common sense-in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.” (quoting *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A.1979))).

*In re Kahn*, 441 F.3d 977, 986-87 (Fed. Cir. 2006). The Appellants define the problem to be solved by their invention as “the provision of microwave heating devices in a motor vehicle” (Br. 16). We disagree with this description. The general problem facing the Appellants was the design of a distributed microwave system that supplies microwaves to one or more microwave-using devices located remotely from the microwave generator (Specification 1:¶ 0002). As such, we agree with the Examiner (Answer 8-9) that the Appellants’ problem is determining

how the microwave energy is transmitted from a remotely-spaced single generator to one or more cooking elements.

Berggren discloses a microwave generator 40 connected via a waveguide or coaxial conductor 41 to a coaxial or waveguide switch 42, which via a first waveguide or coaxial conductor 43 and a second waveguide or coaxial conductor 44, is connected to a heating cavity 45 (Finding of Fact 9). As such, Berggren teaches a means to supply microwave energy, via either waveguides or coaxial cables, from a microwave generator to a heating cavity. Berggren's teaching is thus reasonably pertinent to the problem the Appellants were trying to solve, and is thus analogous art.

The Appellants further contend that Berggren does not address the shortcomings of Nakagawa, Perlman, and Stutman (Br. 17), and there is no motivation, suggestion, or teaching in Berggren for combining it with the prior art in the manner asserted by the Examiner (Br. 17). First, for the reasons provided above in our analysis of claim 21, we find no shortcomings in the underlying combination of Nakagawa and Perlman or Stutman. Second, we agree with the rationale provided by the Examiner (Answer 9) that Berggren shows that the use of waveguides or coaxial cables for connecting the microwave generator and the heating elements was well known and that the use of such well known elements in a known way would have been obvious. We find that the use of Berggren's coaxial cables and waveguides as a conduit between the microwave generator and cooking elements would have been a predictable use of these known conduits in the device of Nakagawa. *KSR*, 127 S.Ct. at 1740 ("When a work is available in

one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”). The Appellants’ argument appears to rely on the position that in the device of Nakagawa, since the microwave oscillator is in the same enclosure as the heating chamber, there is no reason to use the coaxial cable of Berggren (Br. 18). For the reasons discussed *supra* for claim 21, we find that the microwave oscillator of Nakagawa is “remotely spaced” from the heating chambers, and thus, the Appellants have failed to persuade us of error in the Examiner’s legal conclusion of obviousness.

The Appellants’ further arguments consist of nothing more than a recitation of what each claim states and a bald assertion, unsupported by specific arguments, that the claimed limitations are not disclosed in any combination of the prior art (Br. 19-20). These further arguments by Appellants as to claims 22-28, 38-43, and 53-63 do not persuade us of error in the Examiner’s rejection. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007) (“A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.”) As such, we sustain the rejection of claims 22-28, 38-43, and 53-63.

*Rejection of claims 44-49 and 64-69 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Jensen or Takizaki*

The Appellants contend that neither Jensen nor Takizaki addresses the shortcomings of the underlying combination of prior art, and there is no

motivation, suggestion, or teaching in Jensen or Takizaki for combining them with the prior art in the manner asserted by the Examiner (Br. 21). First, for the reasons provided above in our analysis of claim 21, we find no shortcomings in the underlying combination of Nakagawa and Perlman or Stutman. Second, we agree with the rationale provided by the Examiner (Answer 9-10) that the use of sensors, such as temperature or weight sensors, was routine in the art of microwave ovens (Finding of Facts 10 and 11), and thus to use any of these well known sensors in a microwave oven for better controlling a food operation would have been obvious in view of Jensen and Takizaki. *KSR*, 127 S.Ct. at 1740 (“[I]f a technique has been used to improve one device, and a person of ordinary skill would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). The Appellants have not demonstrated that the use of well known microwave sensors in the device of Nakagawa would have been beyond the skill of one having ordinary skill in the art.

The Appellants’ further arguments consist of nothing more than a recitation of what each claim states and a bald assertion, unsupported by specific arguments, that the claimed limitations are not disclosed in any combination of the prior art (Br. 22-23). These further arguments by Appellants as to claims 44-49 and 64-69 do not persuade us of error in the Examiner’s rejection. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007) (“A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.”) As such, we sustain the rejection of claims 44-49 and 64-69.



### CONCLUSIONS OF LAW

We conclude the Appellants have not shown the Examiner erred in rejecting under 35 U.S.C. § 103(a) claims 21, 29-37, 50-52, and 70 as unpatentable over Nakagawa and Perlman or Stutman, claims 22-28, 38-43, and 53-63 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Berggren, and claims 44-49 and 64-69 as unpatentable over Nakagawa and Perlman or Stutman, and further in view of Jensen or Takizaki.

### DECISION

The decision of the Examiner to reject claims 21-70 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

Appeal 2007-2475  
Application 10/708,533

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